TABLE OF CONTENTS

		Page
I.	Stem Blending	1
II.	Corrosion	3
III.	Special Investigations	4
	A. Dryer Comparison	4
	B. Wire Approach System	6
	C. Filling Power	7
	D. Stretchable Paper	9
	E. Off Machine Handling	9
IV.	Budget	9
V.	Machine Operation	10
VI.	Continuous Pulping	12
VII.	Commercial Plant Engineering Study	12
VIII.	Special Studies (Memo to H. B. Merritt from Dr. C. V. Mace)	14
IX.	0706 Project	19
X.	Color	19
XI.	Samples	19
	A. Accomplishments	19
	B. Plans and Schedule	20
	C. Sample Evaluation	20
XII.	RTPM Presentation to Mr. Fowler and Mr. Wenberg of Nicolet	21
	A. RTPM, June 19, 1963, Report by Dr. R. B. Seligman	21
	B. Reconstituted Tobacco June 1963, by Mr. H. B. Merritt	31

1001520018

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

I. Stem Blending

A. Purpose

To feed stems of uniform composition to the RTPM process to eliminate machine fluctuations due to solubles.

B. Sampling Procedure

A core sample of stems was taken from the top to the bottom of each hogshead. The core samples were obtained by using a drill motor driven 4 feet long, 3 1/2 inches diameter tube with a circular saw blade welded to its tip. The samples were taken in about one foot increments until the bottom of the hogshead was reached. Dual samples of several hogsheads showed no variation across the hogsheads.

C. Sample Design

1. Identification of Samples

Bright Stems	Burley Stems
Two hogsheads each of grades #67, #9 and #4 (representing different positions along the stalk) from the following crop years and locations:	Two hoghseads each of grades 7X, 55 and 4 (representing different positions along the stalk) from the following crop year:
1961 Old Belt Middle Belt	1962 Middle Belt
1962 Middle Belt	1962 Burley Belt

2. Interpretation Of Hot Water Solubles Test Results

a. Bright Stems - Variation among grades
A variation as high as 25% exists among grades for both years sampled. This should affect machine operation.

b. Bright Stems - Variation Between Crop Years
There may be a variation of about 2% between crop years.(This is small).

c. Bright Stems - Variation Between Belts
There may be a variation of about 2% between belts. (This is small)

d. Burley Stems - Variation
Burley stems showed no variation among grades.

1001520019

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

3. Table of Hot Water Solubles Test Results

Hot Water Solubles Content In Percent For Bright and Burley Stems Sampled

STEMS

Type:	Bright		Bright		Bright	
Year:	1961		1961		1962	
Belt:	Old		Middle		Middle	
Grades: (representing stalk locations)						
67	50.5) 45.9)	48.2 avg.	45.7) 46.3)	46.0 avg.	48.1) 50.1)	49.1 avg.
4	57.6) 58.4)	58.0 avg.	57.4) 57.4)	57.4 avg.	54.9) 57.1)	56.0 avg.
9	54.0) 53.9)	54.0 avg.	53.6) 51.1)	52.3 avg.	55.6) 53.4)	54.5 avg.
Cumulative Avg.		53.4%		51.9%		53.2%

1962 Burley Stems

Grades: (representing stalk locations)		
7X	41.3) 42.5)	41.9 avg.
55	41.4) 41.0)	41.2 avg.
4	42.8) 42.6)	42.7 avg.
Cumulative Avg.		41.9%

1001520020

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

4. Conclusion

Blend grades for a given year to obtain uniform water solubles level.

5. Program

a. Request stemmery to blend bright stems by grades as above for the extended run. -- Sample during stemmery blending

b. Review results with Mr. T. Budne (complete).

c. Obtain samples from an additional burley crop year and the 1960 bright crop year to complete data.

d. Issue report on findings and blending results.

II. Corrosion

A. Laboratory Studies

A dynamic stress corrosion test on 304 and 316 stainless steel at 65°C has been completed. Samples were taken at seven day intervals for four weeks.

Results

Visual examinations showed no stress or other corrosion. Samples will be retained for microscopic examination when the metal finishing equipment is received and installed.

Test to be initiated

A test to study the effect of a high velocity soluble mist on various metals and materials. (Reference to parts removing solubles by vacuum such as rolls, vacuum boxes, vacuum blades, etc.).

Tests to determine the effect on metals and materials of alternate exposure to solution and air. (Reference to table rolls, felt rolls.)

B. Plant Studies

Constant visual examination is being made of equipment to determine corrosion effects.

All equipment for the small solubles preparation and filtration system has been received. Assembly should be completed in coming period. This entire system will be a corrosion study.

1001520021

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

With the completion of the solubles preparation system the 70 gallon plant corrosion test unit will be put into service. Plans are to run this system continuously with only shut down time for examination and liquid renewal. Various samples will be introduced as desired.

III. Special Investigations

A. Dryer Comparison

1. Results of discussions with three dryer manufacturers Proctor Schwartz, National Drying Company, and Aer Corporation.

IN GENERAL

CAN DRYER	TUNNEL DRYER
a. More efficient drying requires material strength and a surface that can be handled.	Used when sticking or surface is a problem.
b. High speed operation proven (>2,500 ft./min.)	Speed limitation of 200-250 ft./min. normal. Conveyor speed <100 ft./min. Higher web felt vs. conveyor speeds and experimental.
c. Low maintenance	Major maintenance problem at high speed conveyor life.
d. Cost - less than comparable tunnel dryer*	----
e. No width limitation	100-120" width limitation

* Additional cost information promised.

1001520022

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

2. Other reconstituted manufacturers use tunnel dryers.

	Reynolds	Schweitzer	American*
a.	Uses "long" tunnel dryer for handling brittle material.	Uses 5 pass -10 ft. wide. National Drying Co. tunnel dryer	Proctor-Schwartz designing tunnel dryer
b.	Ross Engineering design	Max. speed 200-250 ft./min.	National Drying Co. did not quote
c.	Maintenance believed to be a problem.	Maintenance BIG problem for 3 years i.e. 9 mo. conveyor life: Now using pipe type conveyor.	Design of system believed based on Schweitzer Process.

3. Summary

Major limitations of tunnel dryers are speeds below our projected operating speed, associated major maintenance problems of belt life and unscheduled shut-down and conveyor width.

The white water system lends itself to can dryers vs. other reconstituted processes of solubles re-application.

4. Recommendation

Use can dryers, with release coating if required.

* It appears that tunnel dryer not to be installed in kind as Schweitzer's (item b). Dryer design - experimental or slow speed.

1001520023

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

B Proposed Wire Approach System

1. Goals of wire approach system

(1) Supply clarified white water to showers.

(2) Remove sand and shives.

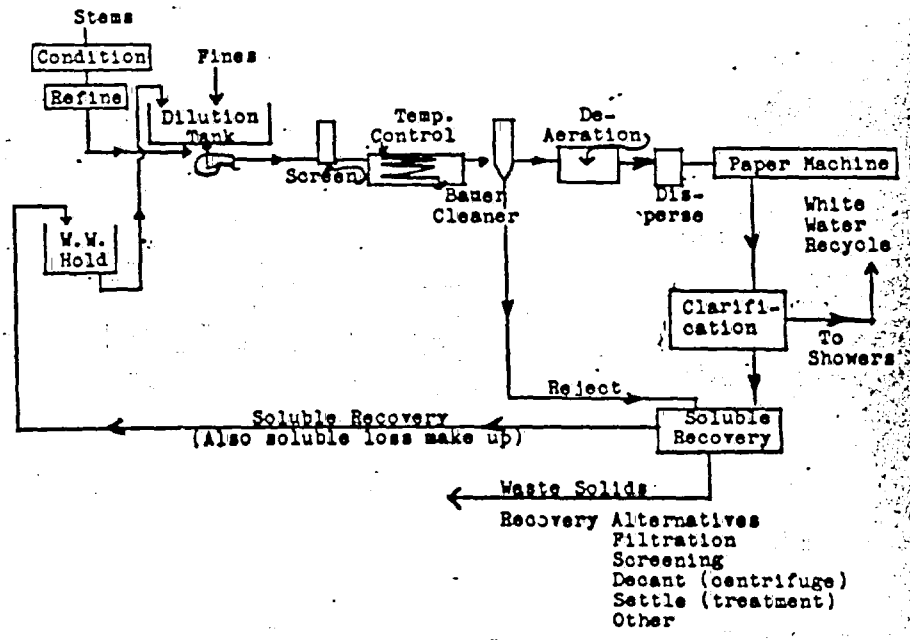
(3) Remove fines beyond wire for improved drainage.

(4) Remove air

(5) Soluble make-up to replace loses.

(6) Supply optimum fiber condition to the wire - i.e. minimum agglomeration etc.

2. BASIC SYSTEM (Many Possible Variations At This Stage Of Knowledge)



1001520024

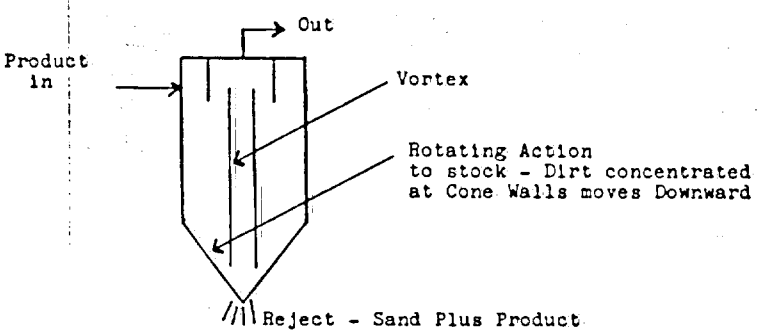
Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

3. Bauer Cleaner

a. Purpose

Remove sand and shives.

b. Operation


Out
Product in
Vortex
Rotating Action to stock - Dirt concentrated at Cone Walls moves Downward
Reject - Sand Plus Product

c. Experimental results

Pump capacities too low to form vortex for initial evaluation.

d. Program

Increase pump capacity and install cleaner in permanent position.

4. Feed Temperature Control Program

a. Calculate heat exchange required and associated equipment.

b. Install in line beyond Bauer Cleaner.

C. Filling Power

1. Basic Approach

A cigarette rod is filled with a fiber mass consisting of a complex truss network of fiber beams. Measurement of this structure or its homogenity would be a measure of filling power.

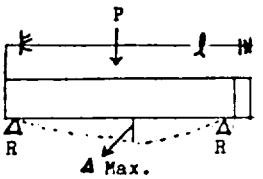
1001520025

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

Pilot plant	.0027	.0027	.0036	.0029
Other fixed cost	.0206	.0209	.0147	.0119
Total	.0485	.0492	.0454 .0317	.0257
Total Cost	.2522	.2563	.2032 .1770	.1654

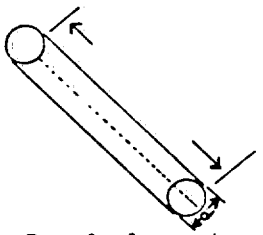
The proposed measuring device would utilize the cigarette rod as a beam.

2. Sketch of a simply loaded beam on two supports



P = Load
l = Distance Between Supports
Δ = Max. Deflection for This Loading

3. Sketch of a cigarette rod - moment of inertia



d = Diameter

The Moment Of Inertia Of The Circular Cross-Section Is:

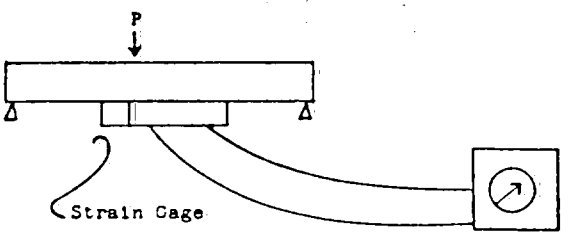
$$I = \frac{\pi d^4}{64}$$

4. Formula for maximum deflection

$$\Delta \text{ Max.} = \frac{Pl^3}{48EI}$$

where E equals the modulus of elasticity - A physical property of the material.

5. Strain gage - to measure deflection



$$\Delta \text{ Max.} = \frac{Pl^3}{48\,EI} = \frac{Pl^3}{48\,E\,\frac{\pi d^4}{64}}$$

For The Measuring Apparatus:
l = Constant
P = Constant
d = Constant
Δ = Measured

Rearranging above gives

$$E = \frac{Pl^3}{48\,I\,\Delta \text{ Max.}}$$

E = Filling Power (For elastic range of composite cigt. beam)

1001520026

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

6. Program

INSTRON

a. Determine magnitude of elastic deflection of the cigarette rod.

b. See if changes in filling power change deflections (Prove theory).

c. Use constant Instron load.

d. Use Instron as calibration device.

(1) Design instrument to measure rod deflection with a strain gage.

(2) Demonstrate reproducibility with Instron deflections.

D. Stretchable Paper

Possible use patentability and optimum method of obtaining information reference feasibility of the Clupak process are under investigation.

E. Off Machine Handling

1. Product sheeter

Cutting of 4" X 4" squares has been demonstrated.

2. Product baler

a. Equipment

Compression cell components received.

b. Program

(1) Make bales and measure allowable compression

(2) Calculate the economics of bale vs. hogsheads.

IV. Budget

Project Service Costs By Division Or Facility As Of Month Ending, May 31, 1963.

1001520027

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

Division or Facility	May	To-Date
Research Division	2.6%	15.6%
Analytical Division	3.1%	52.2%
Subjective Evaluation Facility	2.7%	58.2%
Development Division	9.5%	58.1%
Development - Other Direct Costs	6.9%	19.1%
Total Service Costs Including Other Direct Development Costs	7.9%	32.7%

V. Machine Operation and Alterations

A. Piping Alterations Between Machine Chest and Headbox.

1. Alterations have been completed and operation appears satisfactory.

B. Headbox Alterations

1. Additional baffles have been installed and flow through headbox appears to have improved.

2. Alterations to slice adjustment mechanism has improved sheet basis weight control.

C. Stationary Deckle

1. This deckle has caused lumpy edges on the sheet, which results in pulp build-up on the lump breaker roll and pick-up felt. If adjustments do not correct this situation it may be necessary to replace the stationary deckle with the traveling deckle.

D. Vacuum Pump Piping Changes

1. These alterations have resulted in an increase in couch vacuum of approximately 5" Hg. This increased the water removal capacity of the wire section of the machine.

E. Pick-up Felt

1. Pulp build-up on the felt rolls has been eliminated by changing the felt run.

1001520028

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

2. Installation of splash baffle and change in suction box design has resulted in improved felt cleaning.

3. Change in alignment of felt rolls has improved felt tracking and allows seam to run straight.

F. First Press

1. Under certain conditions press nip floods with water.

   a. As basis weight or moisture increases entering the press the porosity is reduced and press vacuum fails to remove water from the sheet.

G. Yankee Dryer

1. During an experimental run the Yankee was operated with the pressure roll and no release coat. It was necessary to run with a very wet sheet off the Yankee to prevent sticking. Therefore, no increase in Yankee drying rate was realized.

H. Dandy Roll

1. Quotations have been received and purchase requisition will be submitted during the next monthly period.

I. Refractiometer

1. An inline Refractometer has been installed immediately ahead of the machine headbox. It is believed this instrument will give a continuous indication of solubles content in the white water. An evaluation will be made during the next monthly period.

J. Operating Instructions and Flow Diagrams

1. Machine operating instructions and process flow diagrams will be completed during the next monthly period.

K. Plans

1. Elimination of machine mechanical operating problems.

2. Obtain increase in machine speed.

   a. Increased couch vacuum
   b. Increased first press vacuum
   c. Change of sheet run in can dryers

3. Elimination of sheet crushing in the first press.

1001520029

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

VI. Continuous Pulping

A. Solubles Preparation System

The solubles preparation system has been checked and found to be operable. Several modifications still need to be made, but no hold-up will be encountered.

B. Stem Treatment System

The stem conditioning, maceration, dilution, and agitation system (that is all but the pressurized refiners) have been checked and found to be operable.

C. Refiners

Two refiners have been received and the remaining three are expected this week (June 24, 1963). If no delays are encountered in receiving, or installation, break in and familiarization should start the week of June 24, 1963. Continuous pulping studies and machine feed will follow shortly thereafter.

VII. Commercial Plant Engineering Study

A. Stem Processing

1. Specifications for a continuous digester have been typed and edited and are ready for mailing to prospective builders.

2. Very little work has been done on process diagrams since the last report. Concentrated effort will be made on this phase starting immediately.

B. Forming Machine

1. The specifications for the commercial machine have been partially edited. Complete editing should be completed within a week, and typing of the Multilith plates will be started immediately thereafter.

2. A drawing has been made showing the possible reduction in the number of after-dryers when a high intensity air cap is incorporated with the Yankee dryer.

3. The "Analysis of Proposals" form, to be included with the specifications, has been edited and typing started.

4. Data on an electric drive for the forming machine has been requested and received from three leading manufacturers of such drives for paper machines. This data has been reviewed and outlined for an electric drive specification.

1001520030

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

D. Building

1. A preliminary building layout is now being prepared to include area for the pulping process, forming machine, machine shop, tool room, store room, laboratory and office space.

2. The building layout includes sections, floor loading and the special configurations in the machine room to allow discussions on building cost with a structural engineer before the end of this month.

3. Cost estimates are now being made of equipment and furnishings for the machine shop, tool room and store room.

E. Correspondence and discussions in our office with manufacturers and representatives have included the following subjects:

1. Side Inlet Headbox designs

2. Radiant Heat Drying.

3. Air Systems and Hood designs.

4. Doctor material for use with Fiberglas covered rolls.

5. Chrome plating of pilot machine dryer.

F. Miscellaneous Consulting:

1. Pilot machine dryer.

2. Refiner layout and installation.

3. Refiner operation.

4. Project review meeting.

5. Project presentation to Messrs. Fowler, Winberg, Mace and Merritt.

1001520031

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

Dr. H. B. Seligman 21

B. Reconstituted Tobacco June 1963, by Mr. H. B. Merritt 31

PHILIP MORRIS INCORPORATED

INTER-OFFICE CORRESPONDENCE

RICHMOND, VIRGINIA

VIII. Special Studies

To: H. Merritt Date: June 25, 1963

From: C. V. Mace, Jr.

Subject:

Attached are the charts presented at the project review on RTPM (Project 1401), Monday, June 24, 1963.

var

1001520032

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

Belts: (This is small)

d. Burley Stems - Variation
Burley stems showed no variation among grades.

6/24/63

VIII. Special Studies

ECONOMIC STUDIES

RTPM Process - Project 1401

Objectives

1. Optimum RTPM Plant Size
2. Phasing in RTPM and Phasing Out BL
3. Plant Location
4. Storage and Handling of Raw Materials
5. Relative Attractiveness of RTPM and BL Processes by Venture Worth Analysis

1001520033

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

RTPM Cost for Different Plant Capacities, HTI Blend

Machine	A	B	C	D	E	F	G
Width, In.	55	83	110	166	200	2 x 55	2 x 83
Design Spd., ft/min	300	300	300	300	250	300	300
Cpcty., mm #/yr							
3 shifts, 5 days	10.7	16	21.3	32	32	21.3	32
4 shifts, 7 days	16	24	32	48	48	32	48
Investment, mm $	2.75	3.50	4.10	5.20	5.80	4.96	5.95

mm Lbs. RTPM/yr	RTPM Cost, $/100 lbs.						
3 shifts - 5 days							
16		18.9		20.5	21.0		21.2
21			17.9	18.6	19.1	19.2	19.9
24				17.9	18.3		19.0
32				16.5	16.9		17.4
4 shifts - 7 days							
16	18.8	19.8		21.0	22.2		22.1
21		18.1		19.3	19.8		20.0
24		17.4		18.6	19.0		19.1
32			16.5	17.1	17.4	17.6	18.1
48				15.5	15.8		16.2

6/24/63

100152003A

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

Constant visual examination is being made of equipment to determine corrosion effects.

All equipment for the small solubles preparation and filtration system has been received. Assembly should be completed in coming period. This entire system will be a corrosion study.

6/24/63

RTPM vs. BL

Basis: 21mm lbs/yr.

Feed Composition, HTI Sample in %

	RTPM	BL	
Factory By-Product, Stem	7.1	7.6	8.8
" " , Leaf	16.4	17.6	20.4
Glycerin	5.0	-	-
Factory Scrap	10.7	11.5	13.5
Purchased Scrap	10.9	14.9	17.4
Stems	49.9	25.5	29.5
Stems in Binder	00.0	-	10.4
Stems for Binder	00.0	22.9	-
	100.0	100.0	100.0
% Leaf	38	44	51.3
% Stem	57	56	48.7
Leaf/Stem Ratio	0.67	0.78	1.05

1001520035

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

* Additional cost information promised.

6/24/63

Cost of Tobacco Feed for RTPM & BL

mm lbs. per yr.	Feed Cost,* $/100 lbs. RTPM	BL
16	7.60	
21	9.30	9.72
32	11.30	

* Excludes cost of glycerin in RTPM = $1.10/100 lbs. and cost of dry flavors at $0.44/100 lbs. for RTPM and BL.

Cost of RTPM vs. BL

Basis: 21 mm lbs/yr.
Cost in $/100 lbs.

RTPM	BL	
110" - 3 shifts - 17.9	Present dust formula	24.6
83" - 4 shifts - 18.1	DAP with present dust	21.1*
	DAP + increased stems in dust	19.3**

* Reduces cost of BL by about $3.5/100 lbs.

** Reducing leaf-to-stem ratio from 0.88 to 0.67 (same as RTPM) in DAP BL reduces cost about $1.8/100 lbs.

Reducing leaf-to-stem ratio from 1.05 to 0.67 (same as RTPM) in present BL dust formulation reduces cost about $2.7/100 lbs.

1001520036

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

slow speed."

IX. Project 0706

To be reported under Project No. 0706.

X. Color

To be reported under Project No. 1300

XI. Samples

A. Accomplishments

1. Pilot Plant Equipment

a. Continuous pulping unit

Continuous pulping unit has been designed, fabricated, and the installation is 90% complete.

b. Tanks and piping

All tanks and piping used in the continuous pulping unit have been replaced with stainless steel equipment.

c. Stem handling

An improved stem handling system has been installed.

d. Wire approach system

An improved wire approach system has been installed.

e. Cutter

A product cutter has been installed.

2. Pilot Plant Development

a. Stem conditioning

The stem conditioning step has been changed from a liquor soak to steam conditioning. This results in an easier refined stem, and an improved (physically) product.

b. Formex fabric

A Formex fabric is being used in place of a woolen pick-up felt.

1001520037

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

Recovery Alternatives
Filtration
Screening
Decant (centrifuge)
Settle (treatment)
Other

6.

[redacted]

20.

c. Yankee press

A reinvestigation of the use of the Yankee press to improve heat transfer was a failure.

3. Engineering Study

The study is 30-35% complete.

4. Special Investigations - In Progress

a. Plant site
b. Optimum machine size
c. 1 vs. 2 machine mill
d. 5 vs. 7 day operation
e. Phasing RTPM in and BL out of the blends

5. 1963 Report - In progress

B. Plans and Schedule

The sample production plans are unchanged from last month. The schedule has been revised as follows:

June 17	Exhibit II (Completed)
June 24	Exhibit V
July 1	Exhibit III (HTI)
July 8	Exhibit IV (HTI)
July 15	Exhibit VI
July 22	Re-run if necessary
July 29	Inspection
Aug. 3	Extended operation - Exhibit I

A change has been made in the formulation of Exhibit IV, V, and VI. 10% Winnower spills (Class IV factory by products) has been included in the pulp.

C. Sample Evaluation

1. Chemical

The raw material, white water, and product will be analyzed for:

Hot and Cold water solubles
Total alkaloids
Total reducing sugars
Glycerin

2. Physical

Work to break and filling power will be determined on three samples of each run.

1001520038

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

1. Basic Approach

A cigarette rod is filled with a fiber mass consisting of a complex truss network of fiber beams. Measurement of this structure or its homogenity would be a measure of filling power.

3. Cigarettes

a. 100% RTPM cigarettes will be made from each portion of each sample (low, medium, high solubles). Cigarette weight will be based on the base web, and tested for:

TPM
RTD
Static burning rate
Dynamic burning rate
Nicotine
Subjective panel

b. In Marlboro and Philip Morris blends. As in 1 and smoked versus standard Marlboro and Philip Morris.

XII. RTPM Presentation to Mr. Fowler and Mr. Wenberg of Nicolet

RTPM Project Plans for 1963 - 1964

Project plans are predicated on the following schedule:

Plant Production	Sept. 1965
Plant Construction (begin)	Jan. 1964
Management Decision	Sept. 1963

and are aimed at providing management with a firm economic evaluation of this process complete with supporting technical data with regard to filler processing, cigarette making, consumer acceptability, and blend compatibility.

Accomplishments Since Last Report of November 17, 1962

A. Pilot Plant Equipment

1. Continuous pulping unit design; construction and installation 90% complete.

2. Replacement of tank and lines with stainless steel; complete

3. Improved stem handling equipment; installed.

4. Wire approach system; improved.

5. Product cutter (4" X 4") installed.

B. Pilot Plant Developments

1. Steam conditioning of stems - 100% improvement in toughness.

1001520039

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

$$\Delta \text{ Max.} = \frac{Pl^3}{48\,EI} = \frac{Pl^3}{48\,E\,\frac{\pi d^4}{64}}$$

Rearranging above gives

$$E = \frac{Pl^3}{48\,I\,\Delta \text{ Max.}}$$

For The Measuring Apparatus:

l = Constant
P = Constant
d = Constant
Δ = Measured

E = Filling Power (For elastic range of composite cigt. beam)

2. Developed and demonstrated Formex fabric usefulness as a replacement for woolen pick-up felt.

3. Negative result on use of press roll on Yankee dryer; still using release coat.

C. Engineering Study in Progress - Mr. F. C. Vaughan.

D. Special Investigations in Progress

1. Plant site
2. Plant size
3. One machine mill vs. two machine mill
4. 5 day vs. 7 day operation
5. Product phasing

E. RTPM 1963 Report

Presentation in Progress.

F. Continuous Pulping

(See Prints at End of Report)

1001520040

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

IV. Budget

Project Service Costs By Division Or Facility As Of Month Ending, May 31, 1963.

SEPTEMBER 1963 REPORT 23.

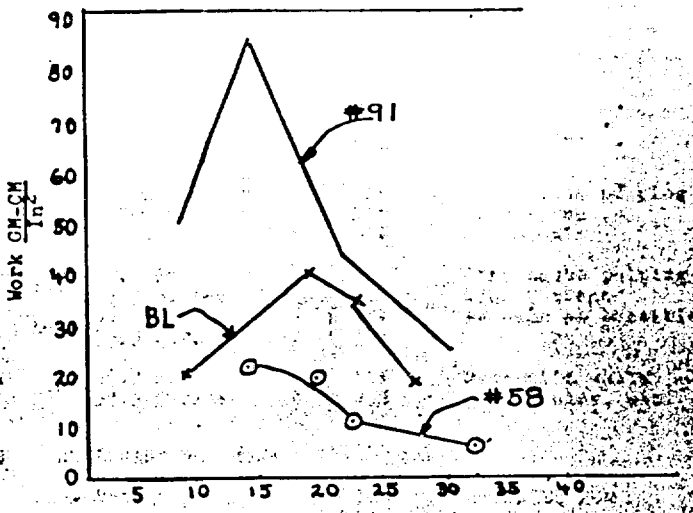
I. RTPM Products

II. RTPM Plant

III. Economics

IV. Recommendations and Future Project Schedule

CHART #1 WORK CURVE RTPM #91 and #58, BL (1/14 and 1/19/63 (Production)



1001520041

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

E. Pick-up Felt

1. Pulp build-up on the felt rolls has been eliminated by changing the felt run.

RTPM EXHIBITS FOR 1963 REPORT

Base wt. 5 gm./ft.^{2}
Glycerine 0.5 gm./ft.^{2} 5-10%
K-Sorbate 0.02 gm./ft.^{2} 0.2-0.4%

Exhibit No.	Date	Material, %	Solubles Level, %	Comments
II	6/17	66.7 Brt. Stems 33.3 Burley Stems	at 10% 25% 50%	Batch pulp
V	6/24	60% 66.7 Brt. Stems 33.3 Burley Stems 40% 66.7 Brt. Leaf 33.3 Burley Leaf	at 10% 25% 50%	Batch pulp Break in Continuous pulping
III	7/1	60% 100% Brt. Stems 66.7% Brt. Leaf 40% 33.3 Burley Leaf	at 10% 25% 50%	Continuous pulping HTI Sample
IV	7/8	60% 66.7 Brt. Stems 33.3 Burley Stems 40% 66.7 Brt. Leaf 33.3 Burley Leaf	at 10% 25% 50%	Continuous pulping BL Flavors HTI Sample
VI	7/15	Stem 66.7 Brt. 33.3 Burley Leaf 66.7 Brt. 33.3 Burley	at 10% 25% 50%	Continuous pulping Leaf Content as high as possible
	7/22	Stem 66.7 Brt. 33.3 Burley	at 10% 25% 50%	Synthetic white water color, etc.
	7/29	NECESSARY RE- RUNS		
I	8/5	100% Bright Stems	at 10% 25% 50%	EXTENDED RUN

1001520042

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

a. Increased couch vacuum
b. Increased first press vacuum
c. Change of sheet run in can dryers

3. Elimination of sheet crushing in the first press.

PROJECTED RTPM PROGRAM

	1963				1964						1965					
	5/6	7/8	9/10	11/12	1/2	3/4	5/6	7/8	9/10	11/12	1/2	3/4	5/6	7/8	9/10	11/12
Development Program																
Sample Production	X	X														
Extended Run		X	X													
Engineering Study	X	X	X													
Management Decision			X	X												
After Management Approval -																
Plant Construction Design & Engr.				X	X	X	X	X	X	X	X	X	X	X		
Equipment Order Machine					X	X	X	X	X	X	X	X	X			
Process Equipment							X	X	X	X	X	X	X			
Personnel				X	X						X	X				
Capital				1/3							2/3					
Plant Start-up													X	X	X	
Production															X	X	X
Development Work				X	X	X	X	X	X	X	X	X				

1001520043

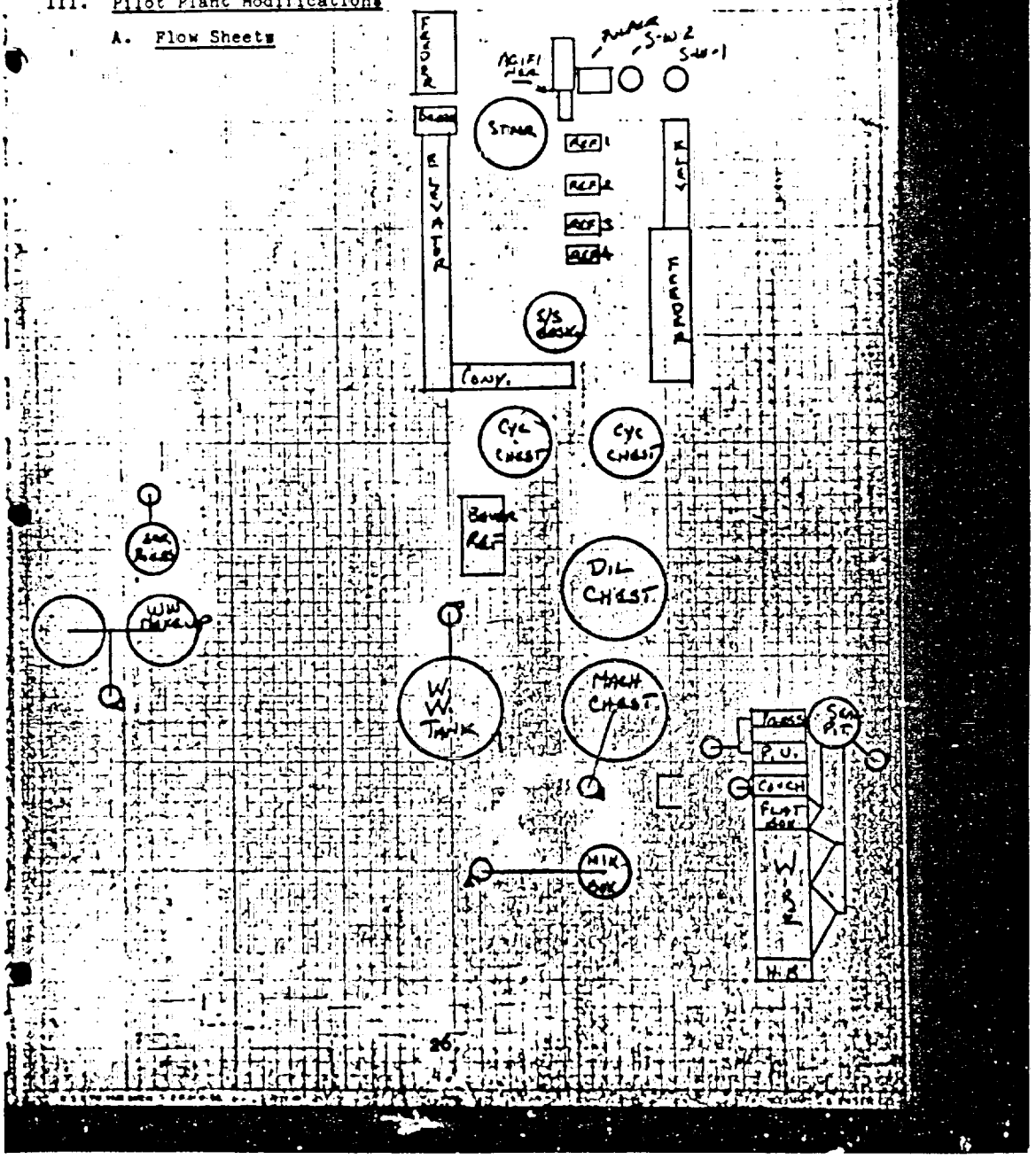
Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

the specifications, has been edited and typed [illegible].

4. Data on an electric drive for the Trailer machine has been requested and received from three leading manufacturers of such drives for pilot machines. This data has been reviewed and revisions for an electric drive specification.

III. Pilot Plant Modifications

A. Flow Sheets



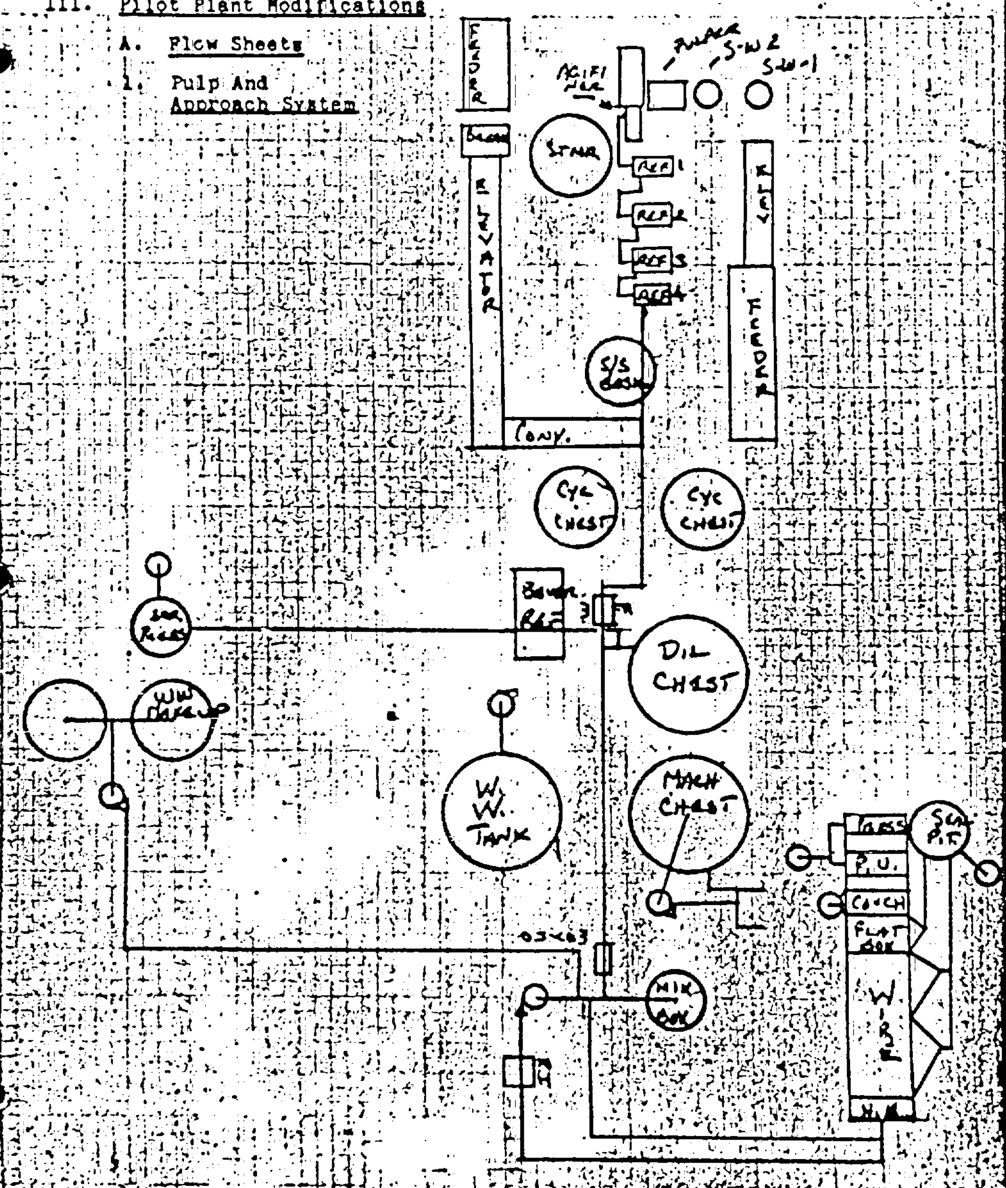
1001520044

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000

III. Pilot Plant Modifications

A. Flow Sheets

1. Pulp And Approach System

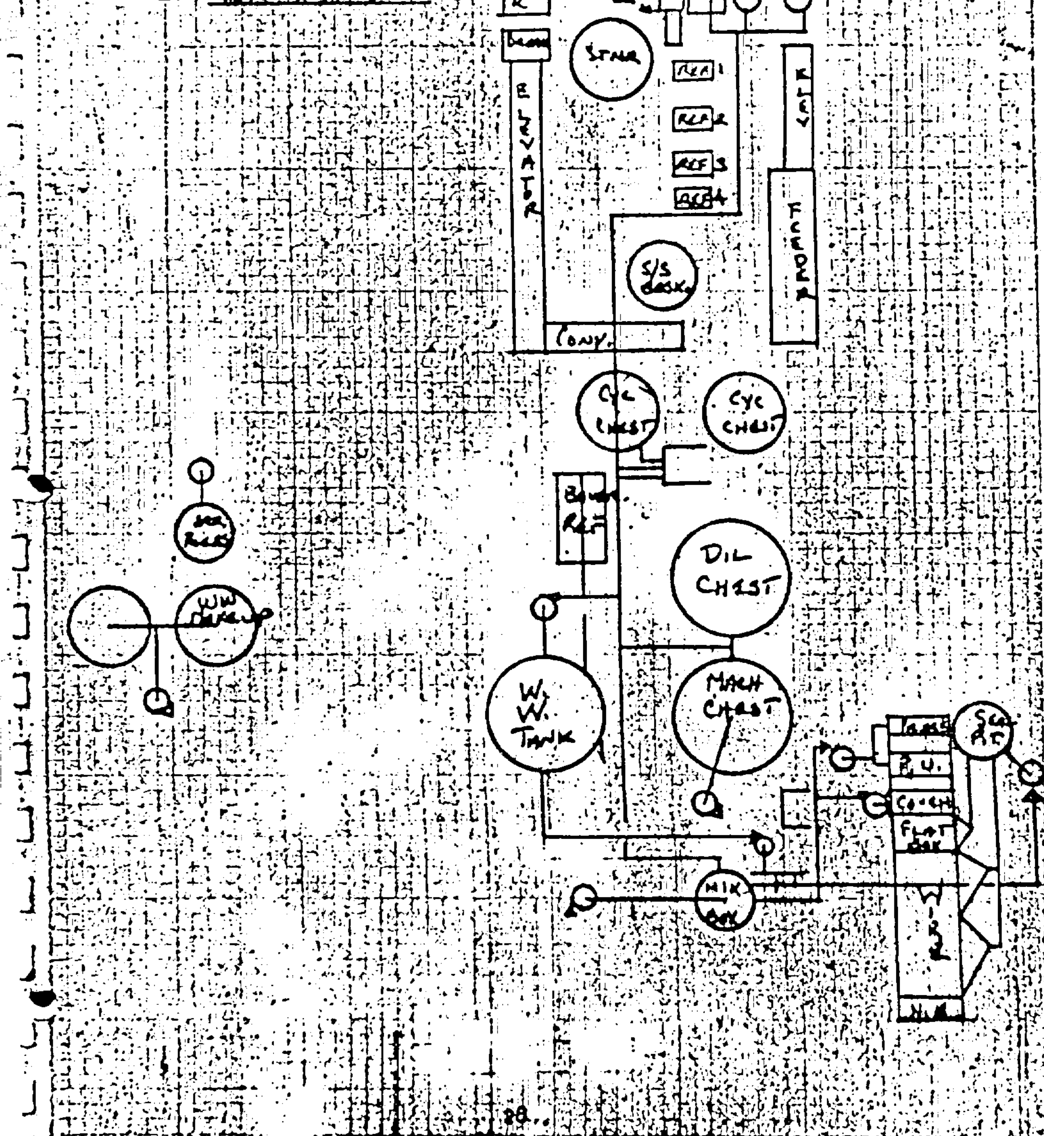


1001520045

III. Pilot Plant Modifications

A. Flow Sheets

2. White Water System

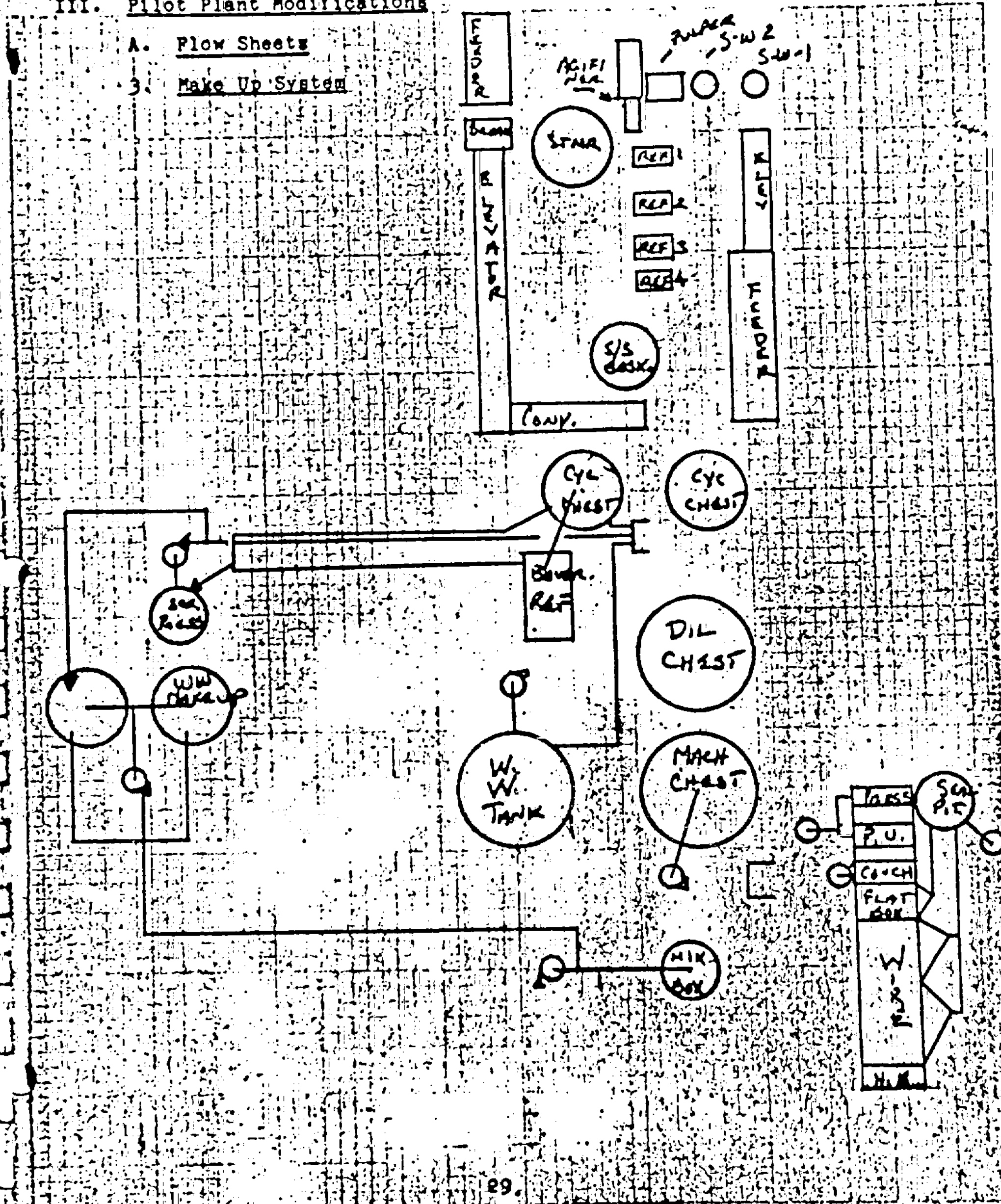


1001520046

III. Pilot Plant Modifications

A. Flow Sheets

3. Make Up System



1001520047

Source: https://www.industrydocuments.ucsf.edu/docs/rtgk0000